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BACKGROUND

Pediatric patients often lack patency in upper limb veins for PICC insertion and may present with occlusions in axillary and subclavian veins due to a history of multiple catheterizations. Conventional PICC insertion sites offer comfort to patients and facilitate proper management (dressing changes and bathing protection) by the care team.

To ensure these benefits, while respecting the catheter-to-vein ratio to prevent thrombotic events, selecting a catheter compatible with infusion therapy needs (number of lumens, blood sampling, and contrast exams), and allowing bedside removal—the infusion therapy nurse specialist proposed the use of a tunneling technique with a PICC to the pediatric vascular surgeon.

OBJECTIVE

To report the experience of using the PICC tunneling technique with Kirschner wire in a pediatric population with diverse clinical profiles.

REFERENCES

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METHODS

This is a retrospective study conducted at a private general hospital in the state of São Paulo, Brazil, from 2020 to 2025. The tunneling technique was implemented in pediatric patients with oncohematological, nephrological, intestinal rehabilitation, and clinical or surgical profiles.

The technique involved creating a subcutaneous tunnel using a 1.5" Kirschner wire (typically used in orthopedic surgeries), from the mid-third of the anterior arm (catheter exit site) toward the puncture site — usually located in the cervical region via internal jugular veins or in the lower limbs via femoral vein puncture.

After catheter insertion, intradermal suturing and skin edge approximation with surgical glue were performed at the puncture site. At the catheter exit site, the device was stabilized with a sutureless securement device and dressing.



RESULTS - KEY FINDINGS

493 <i>Tunneled PICCs inserted</i>	50,8 d <i>Mean dwell time (7–456 days)</i>	8% <i>Complication rate no removal needed</i>	2% <i>CLABSI incidence device replaced</i>
16.7% 4FR SL 70.5% 5FR DL 12.8% 5FR TL	Antibiotic Chemotherapy	Catheter kinking Migration Bleeding	Device replacement

- Patients aged 6 days–14 years (mean 2.5 years);
- 56% female, 44% male;
- weight 1.3–40 kg (mean 8.4 kg);
- 35% oncohematological, 27% clinical / surgical, 23% nephrological , 15% intestinal rehabilitation.
- 93% internal jugular veins to upper limbs, 3.6% from internal jugular veins to the thorax, and 3.4% from femoral veins to lower limbs and abdomen.



CONCLUSIONS

Based on the data obtained, we conclude that PICC tunneling from central veins to upper or lower limbs is a safe technique with a low incidence of complications and should be considered a viable option for patients with complex venous access.